

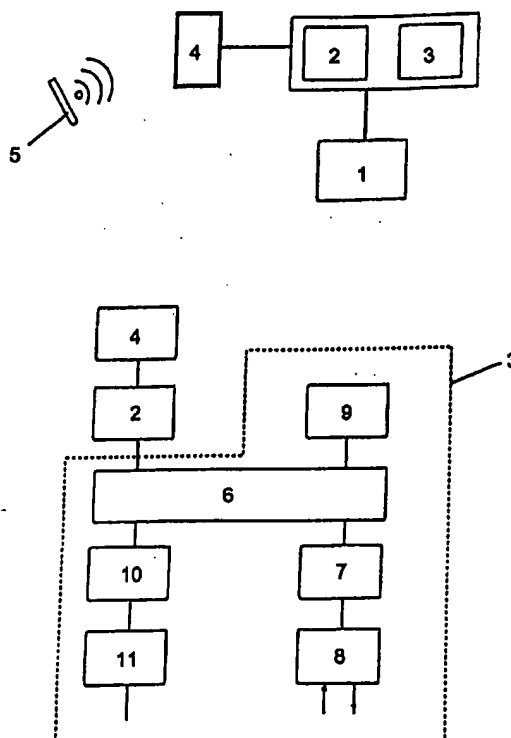
PCTWORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : G07F 7/10, G07C 9/00, G07F 19/00	A1	(11) International Publication Number: WO 98/52164 (43) International Publication Date: 19 November 1998 (19.11.98)
(21) International Application Number: PCT/HU98/00051 (22) International Filing Date: 14 May 1998 (14.05.98) (30) Priority Data: U 97 00136 14 May 1997 (14.05.97) HU (71)(72) Applicants and Inventors: TALMAIER, Ferencné [HU/HU]; Arany János u. 25, H-1153 Budapest (HU). KOCSIS, András [HU/HU]; Csónakház u. 8, H-1031 Budapest (HU). UJHELY, Péter [HU/HU]; Hankóczy Jenő u. 14, H-1022 Budapest (HU). (74) Agent: S.B.G. & K. PATENT AND LAW OFFICES; Andrassy út 113, H-1062 Budapest (HU).		(81) Designated States: Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: IDENTIFICATION TERMINAL EXTENSION FOR CONTACTLESS AUTHORIZATION TO REALIZE DIRECT COMPUTER TRANSACTIONS**(57) Abstract**

Identification terminal extension for contactless authorization to realize direct computer transactions, particularly bank transactions; said identification terminal extension can be connected to a computer terminal and comprises a read unit including a radio-frequency transmitter (2) of low coverage and an aerial (4), further a code transmitter (5) incorporated in a carrier means and sending an independent, periodically programmed data sequence. The code transmitter (5) is made without electric power source and is embedded in insulating material of the carrier means and is supplied and operated by the radio-frequency energy sent periodically by the aerial (4) of the read unit. The data sequence programmed into the code transmitter (5) includes the given individual access codes and/or keywords which are written into the ROM of the code transmitter (5) during manufacturing.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

Identification terminal extension for contactless
authorization to realize direct computer
transactions

5 The invention relates to identification terminal extension for contactless authorization to realize direct computer transactions, particularly bank transactions. The identification terminal extension can be connected to a computer terminal and comprises a read unit including a radio-frequency transmitter of low coverage and an aerial, further a code transmitter
10 incorporated in a carrier means and sending an independent, periodically programmed data sequence. The code transmitter is formed without electric power source and is embedded in insulating material in the carrier means. The code transmitter is supplied and operated by the radio-frequency energy sent periodically by the aerial of the read unit.

15 The identification terminal extension can be installed on a conventional computer terminal, making it suitable for example to the so-called home banking services, ensuring at the same time great data safety.

 The present rapidly expanding home banking services have the intention that bank customers could use a computer owned by them to follow their turnover, to access the bank's business information and to have control over
20 their accounts. This allows access to the desired information without traveling or making use of mail services. At the same time the customers do not contradict the generally accepted rule that information about accounts and their turnover should not be communicated by telephone.

25 The prevention of access initiated by unauthorized persons can raise problems in the case of computers owned either by organizations or private individuals.

 For these purposes identification systems with magnetic cards are used. These have the drawbacks of damageability and the fact that by relatively
30 simple means a copy can be made from the magnetic strip accessible from outside.

It is the object of the present invention to adapt a well-tried system of devices which - provided with a single-purpose program to be designed to perform administration and communication functions - is suitable to unambiguously identify the user of the given computer's terminal in various types of transactions, including but not limited to those involving banking.

The solution to this problem is influenced by the belief in the favourability of the registration and identification systems used to keep track of people and objects with various level of clearance already employed by several greater development companies. The most common applications of this sort are the workplace entrance-exit and worktime registration systems. Such a system can be made suitable by a corresponding adaptation for the contactless authorization, for the selectively authorized completion of transaction access tasks of the described type, particularly for home banking services. This can be considered as the nearest technical solution to the present utility model.

As an exemplary, known system the registration and identification system of Texas Instruments (TIRIS) can be mentioned. The details can be found in the publication of Texas Instruments Incorporated entitled "TIRIS - Overview of Technology, Products and Applications", 1993.

According to the most general solution the data sequence programmed in the code transmitter of the identification terminal extension described in the opening paragraph includes the given individual access codes and/or keywords which are written in the ROM of the code transmitter by the manufacturer of the code transmitter.

The present invention will now be described, by way of example, with reference to the accompanying drawings, wherein:

Figure 1 shows the block scheme of TIRIS, and

Figure 2 is a functional block scheme showing the read unit of the identification terminal extension according to the present invention.

Figure 1 shows the block scheme of a radio-frequency registration and identification system, that is of the TIRIS. The read unit including the radio-frequency transmitter 2 and control unit 3 is connected to the computer terminal

1. Radio-frequency transmitter 2 is feeding the aerial 4. In the time interval between the energy pulses sent by aerial 4 code transmitter 5 sends back a data sequence programmed in it in advance which is received also by the aerial 4. The sending of energy pulses and the sending back of data sequence
5 programmed in advance by means of the energy accumulated from the sent pulses is repeated periodically. This is suitable to realize the checking of the contactless authorization, i.e. of the continuous authorization.

The system is a radio-frequency system of low coverage, that is the coverage within which the code transmitter 5 can receive and send back, is
10 about 1 meter. Depending on the directional characteristics of the aerial the coverage is also typically direction dependent.

The above radio-frequency system was used partly without modification to the identification terminal extension. According to the present invention, the control unit 3 shown in Figure 1, however, is adapted according to the special
15 object of the present invention. Figure 2 is a functional block scheme showing the read unit of the identification terminal extension according to the present invention, and within this the proposed solution to the control unit 3 is surrounded by dotted line.

The main element of control unit 3 is the microcontroller 6 to which are
20 connected a serial line communication circuit, the USART 7 and then the terminal matcher 8. The later is connected to the computer terminal 1 by standard interface (for example RS232). This two-way data link symbolized on the drawing by two arrows is provided practically by means of cable and plug connector. In the embodiment shown further a reset circuit 10 and a display 9
25 are connected to microcontroller 6. Supply unit 11 supplies current to all these elements. Supply unit 11 is usually connected to the 220 V network, but it can be connected to another source (e.g. to an accumulator).

It is an important characteristic of the utility model according to the present invention that the data sequence programmed in advance in the code
30 transmitter 5 according to the object of the invention is composed only from the individual access codes and/or keywords currently used for the given

application, e.g. for the access to a banking system. Programming in advance means here of course that in the present case an individual user code is written, burned in by the manufacturer, i.e. a custom design hardware element is produced. It results from this that it is made for the user by means of a ROM.

5 The code transmitter 5 being a circuit, it must be embedded in a portable carrier. There can be many types of carriers, such as capsules or buttons. However, in the present embodiment, preferably a plastic card is used in which the circuit and the aerial of the code transmitter 5 are embedded in an insulating plastic material. This card can be comfortably manipulated by the
10 authorized user.

The operation of the unit is monitored by the autonomic microcontroller 6. Microcontroller 6 controls cyclically a radio-frequency transmitter through a line. The cyclically operating microcontroller 6 and the single-purpose program managing the access codes and/or the keywords provide increased safety. The
15 received data sequence is checked and stored by the microcontroller 6, then the cycle starts again. Simultaneously another process is handled, namely the dialogue with the computer terminal 1 through the units USART 7 and terminal matcher 8. Thereby it is ensured that the monitoring single-purpose program be informed from the presence or absence of code transmitter 5.

20 In the realized embodiment the read unit is disposed in a single closed plastic box. This box is connected to the computer terminal 1 by a cable and plug connector. The connection to the 220 V network is realized by another cable. So the identification terminal extension according to the present invention can be easily installed on nearly any computer or computer terminal
25 1.

The use of the identification terminal extension according to the present invention is very simple. The lack of electric contact eliminates a frequent source of failures. The identification code - independent of its particular nature - can not come to the knowledge of unauthorized persons, if it is not accessible
30 information in the computer system. Besides, the code written in the code transmitter is known only by the manufacturer and is not known by the

authorized user himself, because this is not necessary. In addition to its primary banking use, the solution can also be employed in other applications where the verification of confidential access is needed, such as access to non-public data bases.

CLAIMS

1. Identification terminal extension for contactless authorization to realize
5 direct computer transactions, particularly bank transactions; said identification
terminal extension can be connected to a computer terminal and comprises a
read unit including a radio-frequency transmitter of low coverage and an aerial,
further a code transmitter incorporated in a carrier means and sending an
independent, periodically programmed data sequence; said code transmitter is
10 formed without electric power source and is embedded in insulating material of
the carrier means and said code transmitter is supplied and operated by the
radio-frequency energy sent periodically by the aerial of the read unit,
characterized in, that the data sequence programmed in the code transmitter
(5) of the identification terminal extension includes the given individual access
15 codes and/or keywords which are written into the ROM of the code transmitter
(5) by the manufacturer of the code transmitter (5).

2. Identification terminal extension according to claim 1, characterized in,
that the read unit is provided with a single-purpose program managing the
20 individual access codes and/or keywords.

3. Identification terminal extension according to claim 1 or 2,
characterized in, that the read unit is controlled by means of an autonomous,
cyclically operating microcontroller (6).
25

4. Identification terminal extension according to any of the claims 1-3,
characterized in, that the read unit is disposed in a single closed box connected
to the computer terminal (1) through a cable and a plug connector.

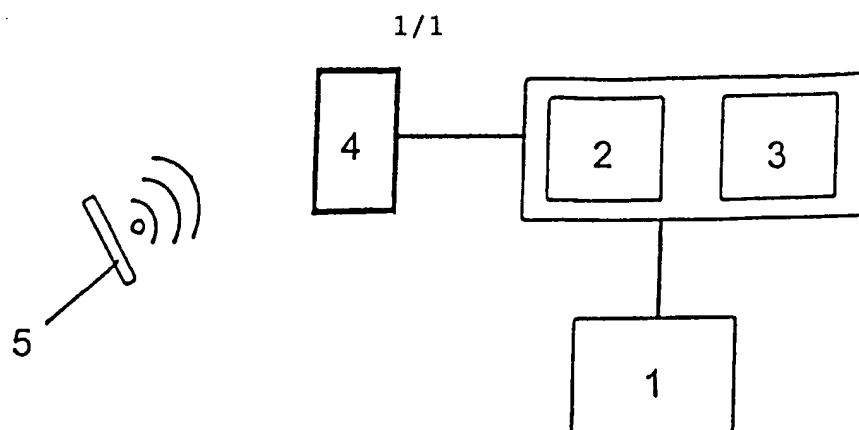


FIG. 1

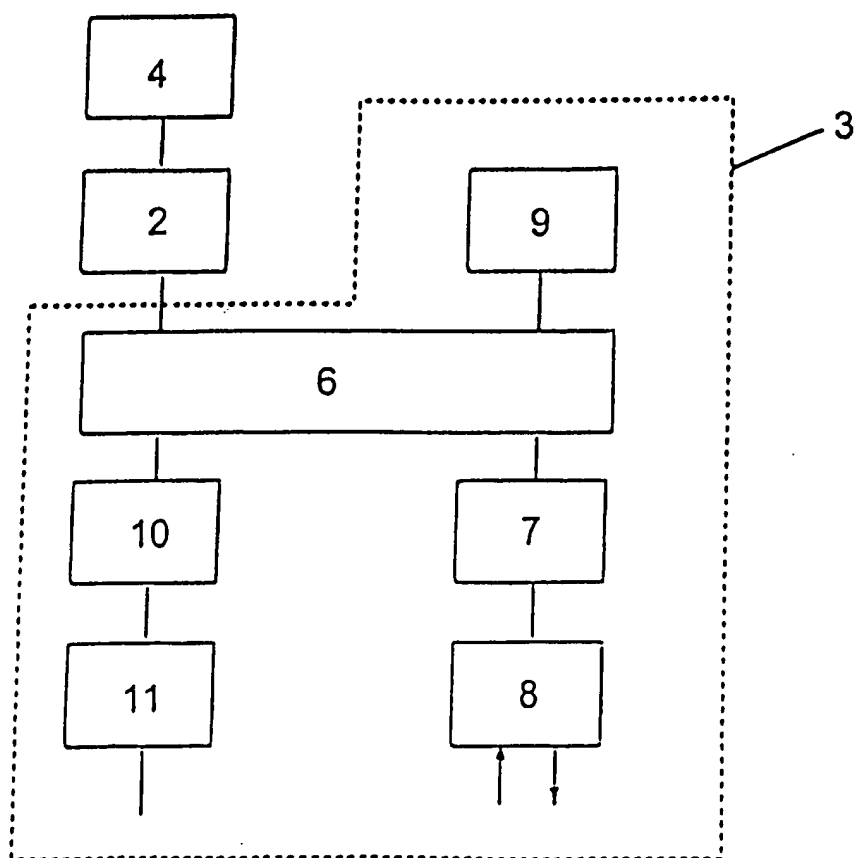


FIG. 2

INTERNATIONAL SEARCH REPORT

In tional Application No

PCT/HU 98/00051

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 G07F7/10 G07C9/00 G07F19/00

According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 G07F G07C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 703 676 A (TOKAI RIKI DENKI SEISAKUSHO) 27 March 1996	1-3
A	see the whole document ---	4
Y	US 4 757 185 A (Y. ONISHI) 12 July 1988	1-3
	see the whole document ---	
A	US 4 822 990 A (M. TAMADA) 18 April 1989	1-3
	see abstract; claims; figures 1,2,5 see column 2, line 17 - column 3, line 6 ---	
A	US 4 459 474 A (C.A. WALTON) 10 July 1984	1-4
	see abstract; claims; figures 1,2,4 see column 2, line 43 - column 4, line 41 ---	
A	US 5 473 318 A (B. MARTEL) 5 December 1995	1-3
	see abstract; claims; figures 2,6 see column 3, line 36 - column 4, line 4 ---	
	-/--	



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

21 September 1998

Date of mailing of the international search report

28/09/1998

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 apo nl,
Fax: (+31-70) 340-3016

Authorized officer

David, J

INTERNATIONAL SEARCH REPORT

In ational Application No

PCT/HU 98/00051

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 93 16531 A (SAAB-SCANIA COMBITECH) 19 August 1993 ---	
A	KERSLAKE R: "RADIO FREQUENCY IDENTIFICATION" AUTOMOTIVE ENGINEER, vol. 17, no. 5, 1 October 1992, page 30, 44 XP000307235 -----	

INTERNATIONAL SEARCH REPORT

Information on patent family members

In tional Application No

PCT/HU 98/00051

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0703676	A	27-03-1996	JP 8097777 A	12-04-1996
			AU 684386 B	11-12-1997
			AU 3280695 A	04-04-1996
US 4757185	A	12-07-1988	JP 1755960 C	23-04-1993
			JP 4042703 B	14-07-1992
			JP 62254265 A	06-11-1987
US 4822990	A	18-04-1989	JP 62128358 A	10-06-1987
US 4459474	A	10-07-1984	NONE	
US 5473318	A	05-12-1995	NONE	
WO 9316531	A	19-08-1993	EP 0626115 A	30-11-1994
			SE 9200441 A	15-08-1993
			US 5640164 A	17-06-1997